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Hahn-Carlson

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[54] SHIPMENT TRANSACTION SYSTEM AND AN ARRANGEMENT THEREOF

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[51] Int. Cl.[6] G06F 17/00

[52] U.S. Cl. 364/479.01; 364/478.04; 364/479.06; 364/479.07; 705/29; 705/34; 705/39

[58] Field of Search 364/468.03, 468.05, 364/468.22, 478.01, 478.04, 479.01, 479.06, 478.02, 479.07; 395/674, 675; 705/28–30, 34, 39, 40, 44

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Primary Examiner—Paul P. Gordon

[57] ABSTRACT

A computer processing system for a shipment transaction involving a shipper and a carrier. The system is particularly suited to efficiently automate the payment of a shipment transaction and to efficiently provide access to relevant shipment information. The system includes a shipper processor which receives purchase order information and assists in generating a bill of lading for the transaction. A shipper access terminal interfaces between the shipper processor and a central processor arrangement to control the quantity, quality, and timeliness of information transferred to the central processor arrangement. The central processor arrangement stores selective shipment information and generates reports regarding the transactions. A carrier processor provides proof of delivery to the central processor arrangement. The central processor communicates with one or more financial institutions so that the carrier is paid and shipper billed for the relevant transaction.

12 Claims, 9 Drawing Sheets

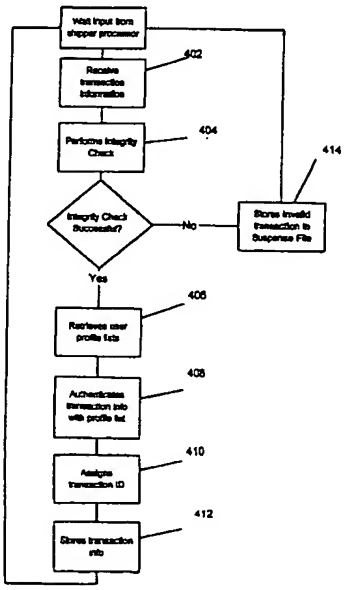


FIGURE 1

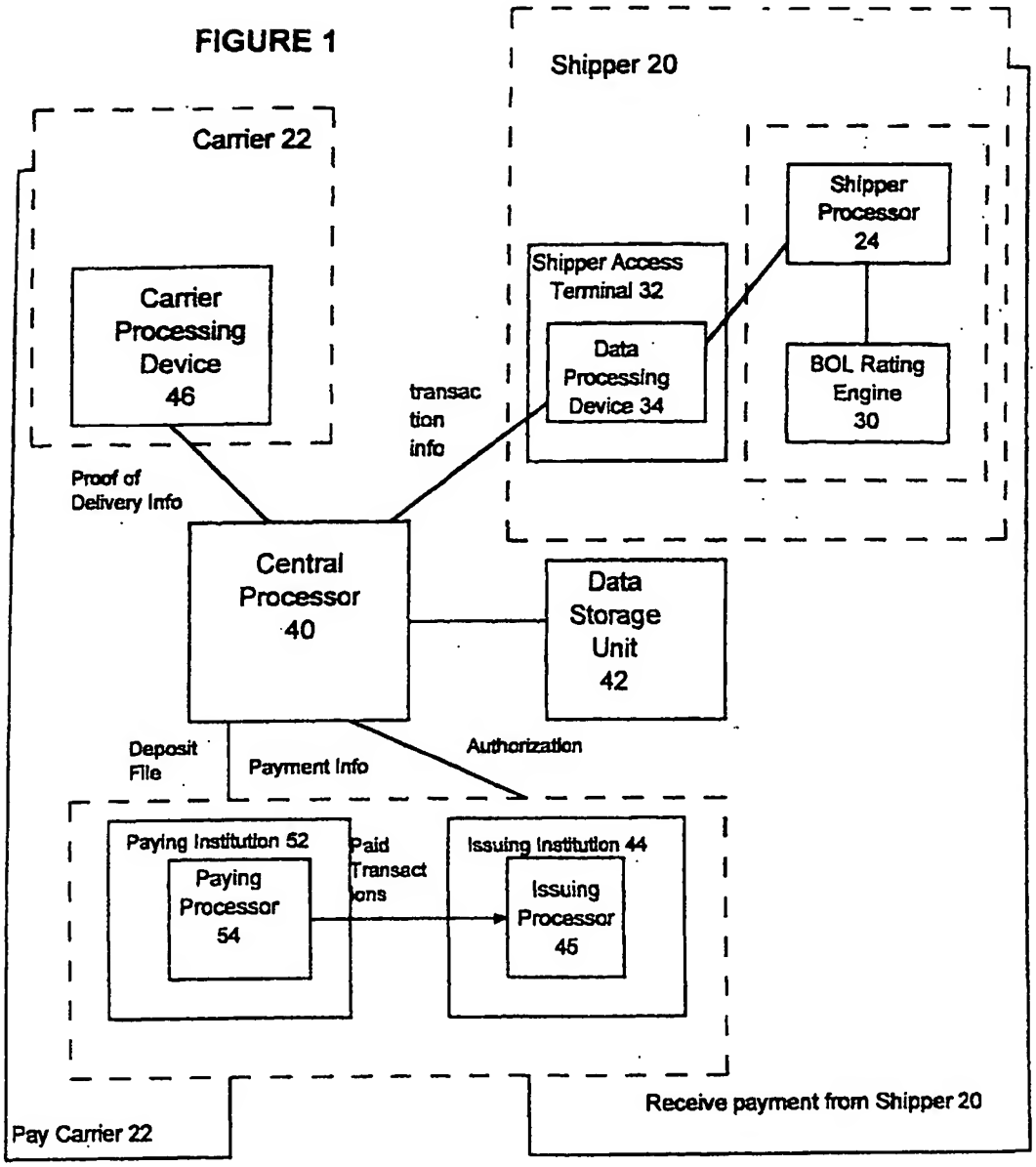

Shipper 20
Carrier 22
Shipper Processor 24
Shipper Access Terminal 32
Carrier Processing Device 46
Data Processing Device 34
BOL Rating Engine 30
transac tion info
Proof of Delivery Info
Central Processor 40
Data Storage Unit 42
Deposit File
Payment Info
Authorization
Paying Institution 52
Paying Processor 54
Paid Transact ions
Issuing Institution 44
Issuing Processor 45
Receive payment from Shipper 20
Pay Carrier 22

FIGURE 2

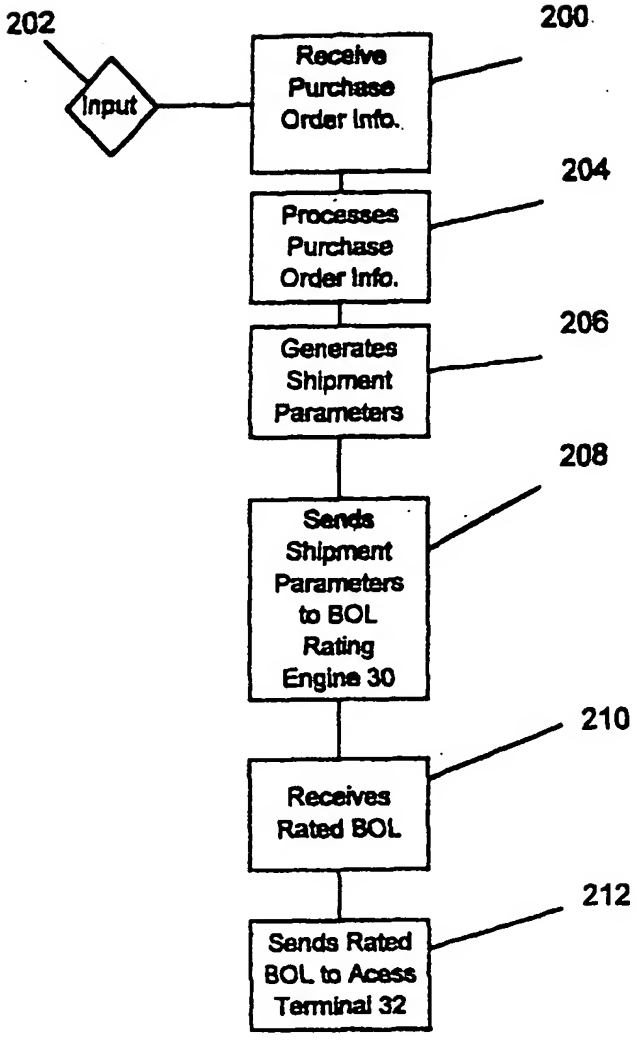


FIGURE 2a

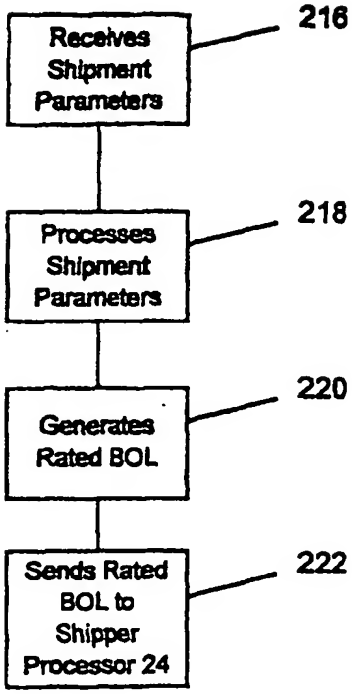


FIGURE 3

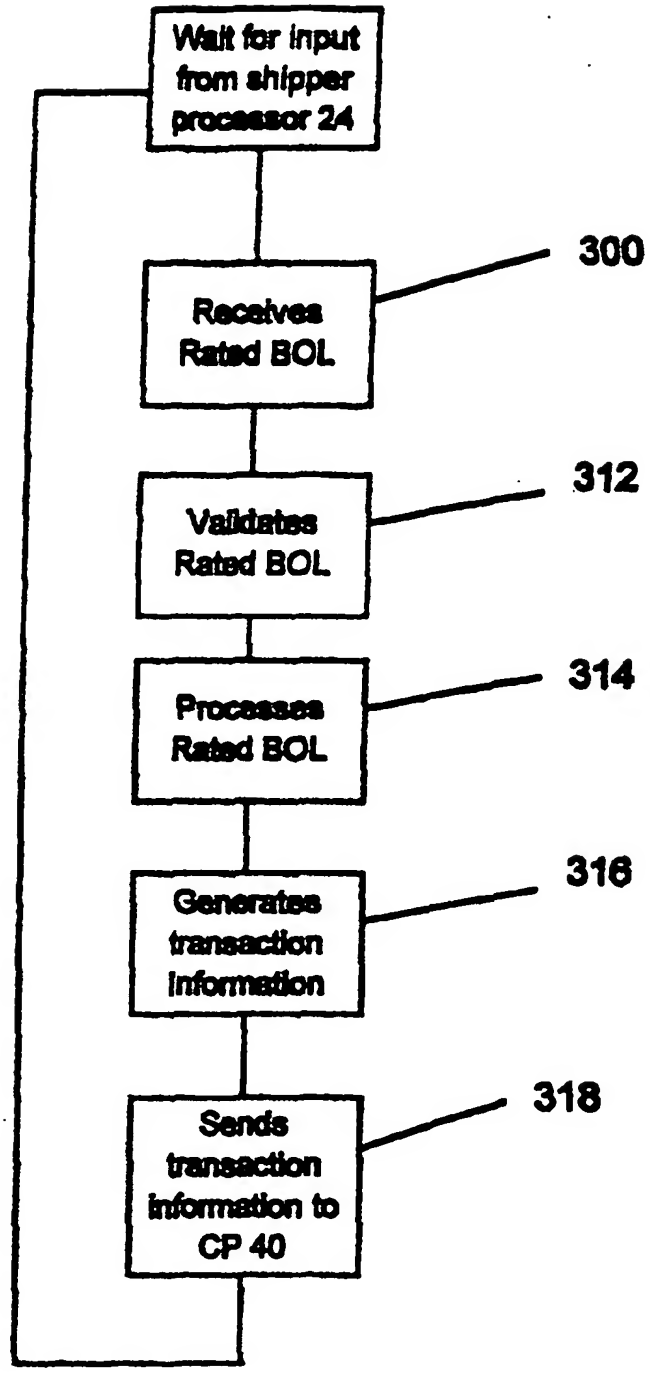
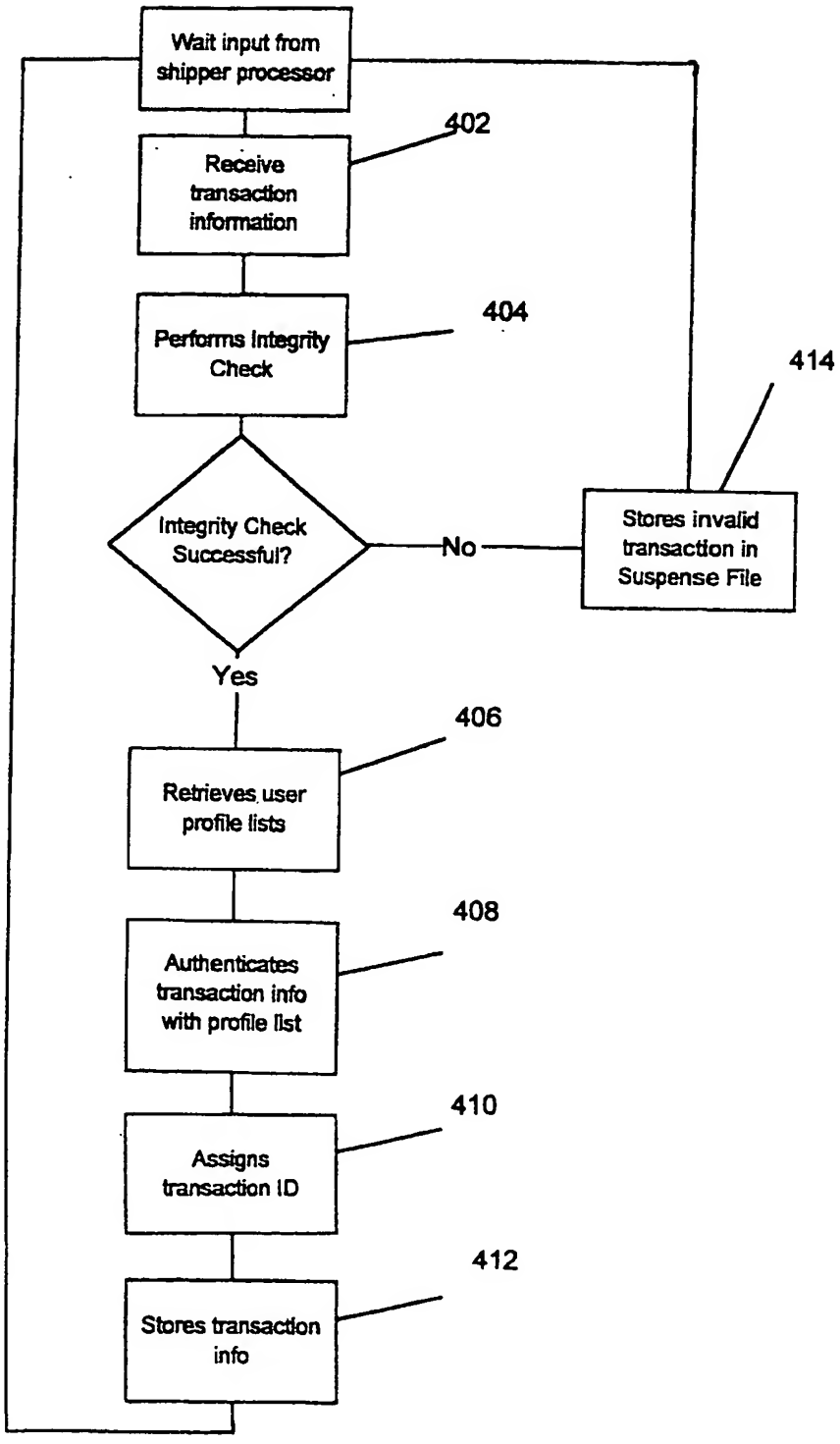

Wait for input from shipper processor 24
Receives Rated BOL
300
Validates Rated BOL
312
Processes Rated BOL
314
Generates transaction information
316
Sends transaction information to CP 40
318

FIGURE 4


Wait input from shipper processor
402
Receive transaction information
404
Performs Integrity Check
414
Integrity Check Successful?
No
Stores invalid transaction in Suspense File
Yes
406
Retrieves user profile lists
408
Authenticates transaction info with profile list
410
Assigns transaction ID
412
Stores transaction info

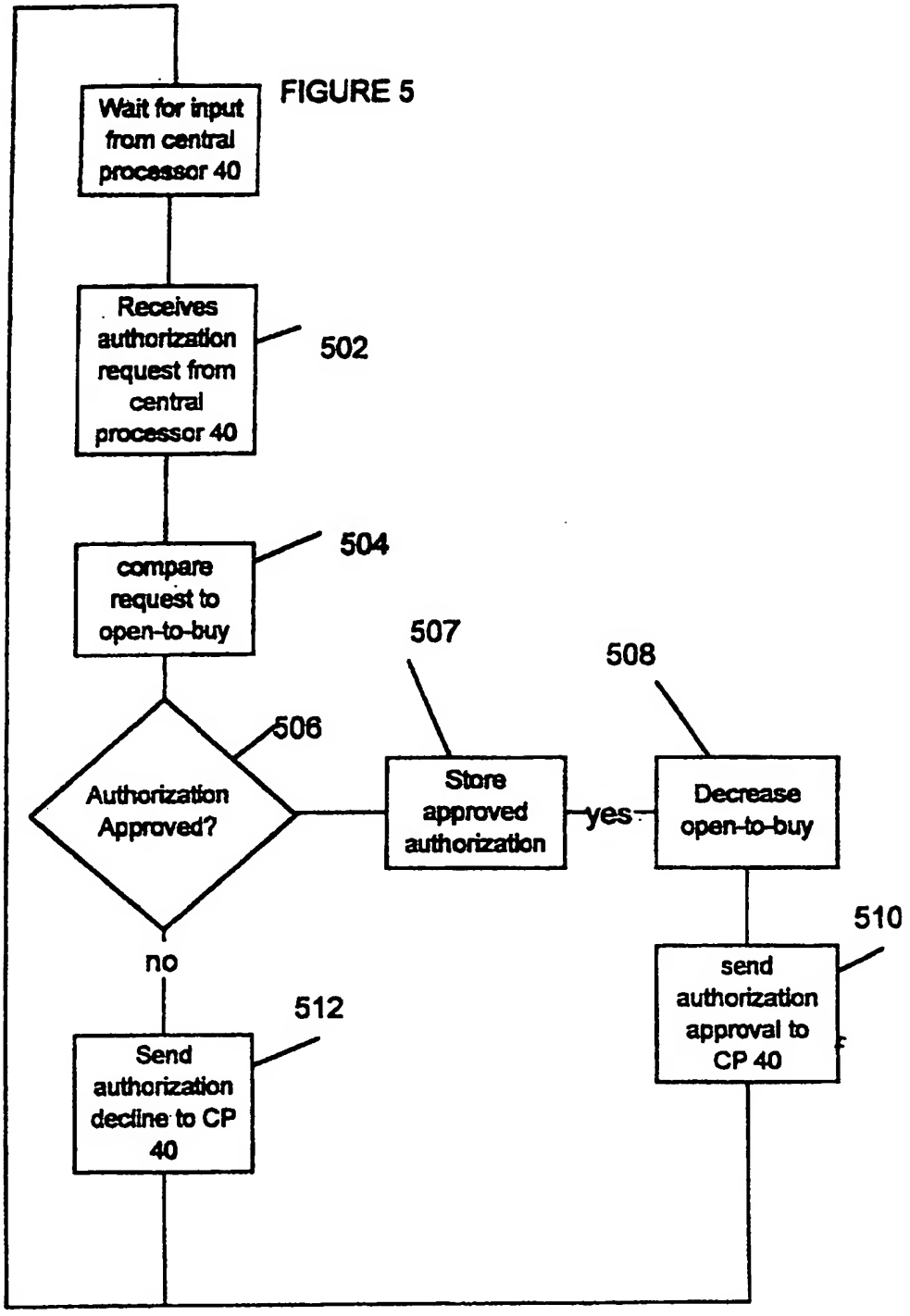

Wait for input from central processor 40
Receives authorization request from central processor 40
502
compare request to open-to-buy
504
507
508
Authorization Approved?
506
Store approved authorization
yes
Decrease open-to-buy
510
send authorization approval to CP 40
no
512
Send authorization decline to CP 40

FIGURE 5

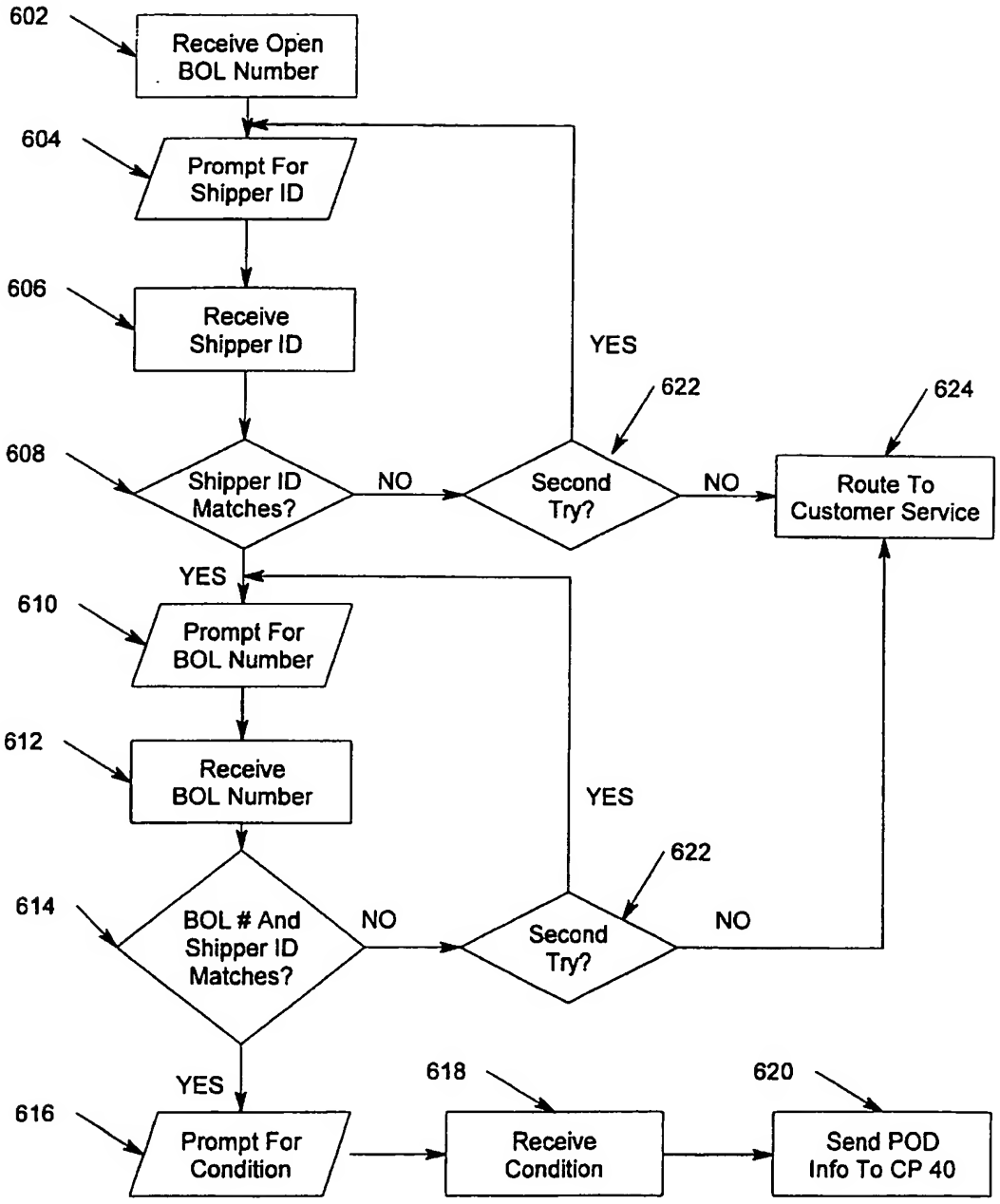

602
Receive Open BOL Number
604
Prompt For Shipper ID
606
Receive Shipper ID
608
Shipper ID Matches?
NO
Second Try?
NO
YES
622
624
Route To Customer Service
YES
610
Prompt For BOL Number
612
Receive BOL Number
614
BOL # And Shipper ID Matches?
NO
Second Try?
NO
YES
622
YES
616
Prompt For Condition
618
Receive Condition
620
Send POD Info To CP 40

FIGURE 6

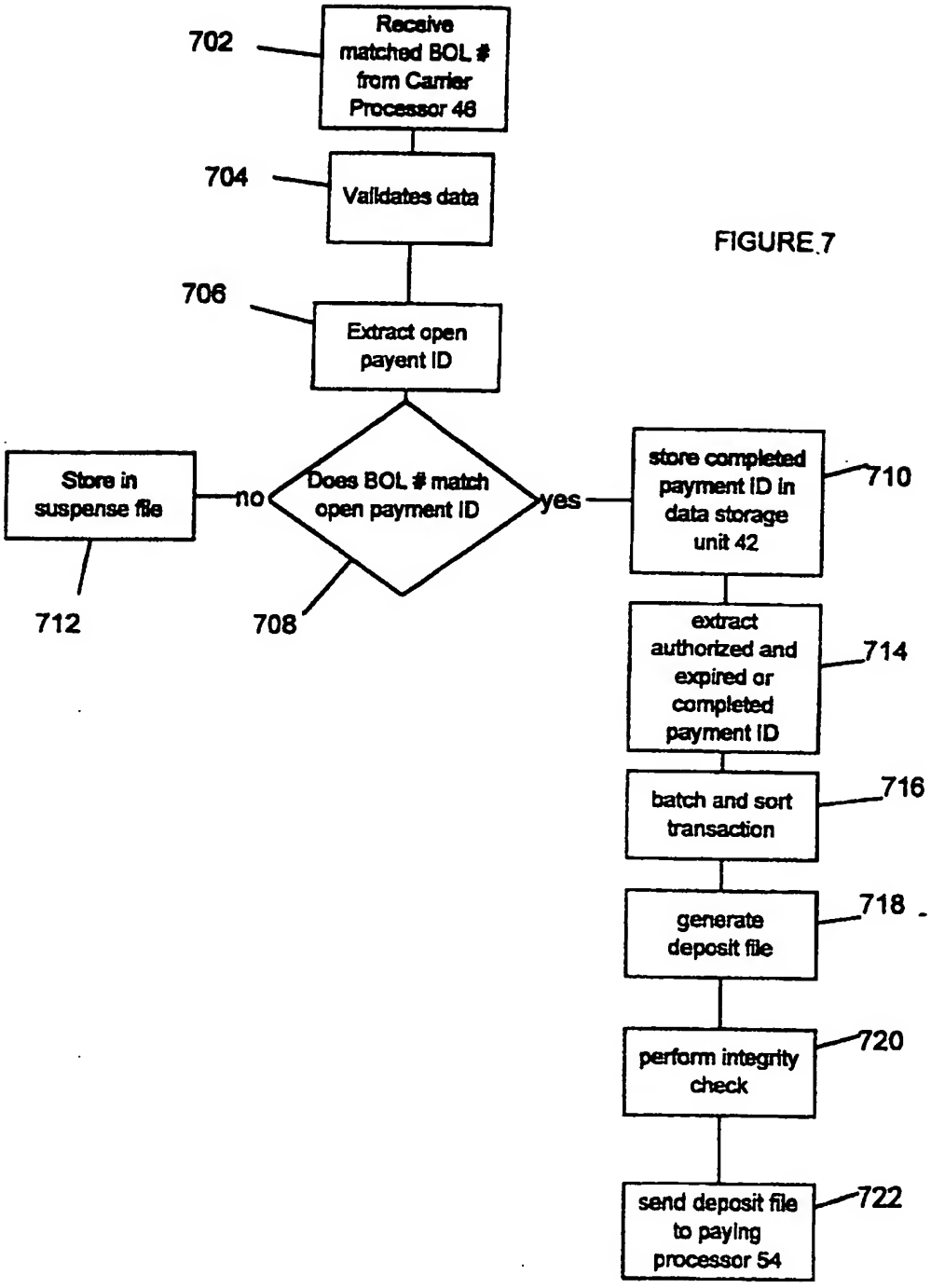

Receive matched BOL # from Carrier Processor 46
702
Validates data
704
Extract open payent ID
706
Does BOL # match open payment ID
708
yes
no
Store in suspense file
712
store completed payment ID in data storage unit 42
710
extract authorized and expired or completed payment ID
714
batch and sort transaction
716
generate deposit file
718
perform integrity check
720
send deposit file to paying processor 54
722

FIGURE 7

FIGURE 8

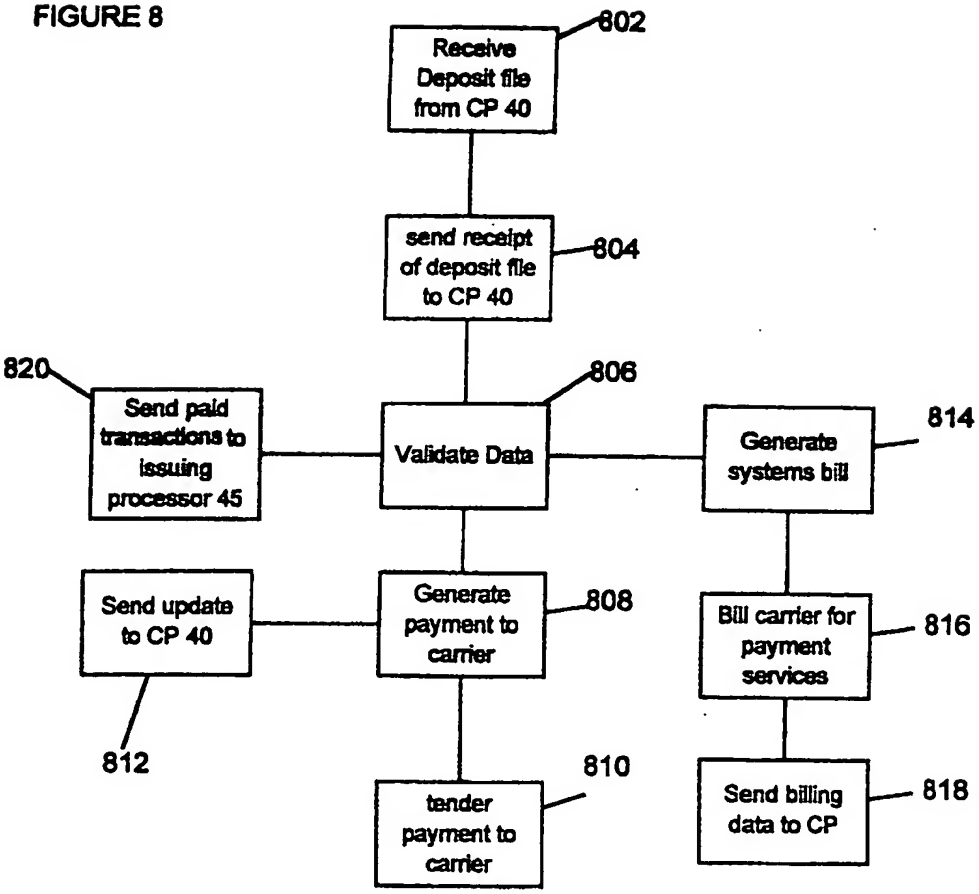
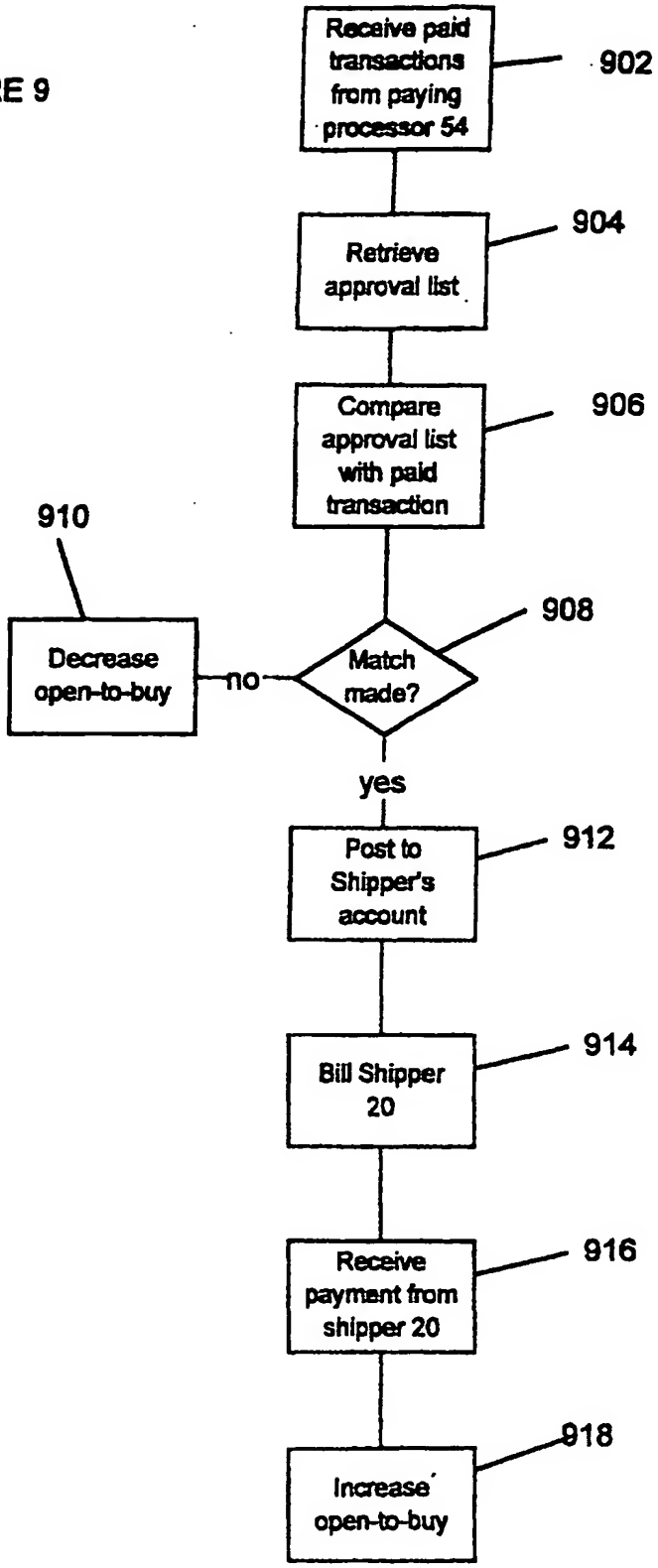

Receive Deposit file from CP 40
802
send receipt of deposit file to CP 40
804
820
Send paid transactions to issuing processor 45
806
Validate Data
Generate systems bill
814
Send update to CP 40
Generate payment to carrier
808
Bill carrier for payment services
816
812
tender payment to carrier
810
Send billing data to CP
818

FIGURE 9


Receive paid transactions from paying processor 54
902
Retrieve approval list
904
Compare approval list with paid transaction
906
910
Decrease open-to-buy
no
Match made?
908
yes
Post to Shipper's account
912
Bill Shipper 20
914
Receive payment from shipper 20
916
Increase open-to-buy
918

SHIPMENT TRANSACTION SYSTEM AND AN ARRANGEMENT THEREOF

FIELD OF THE INVENTION

The present invention relates to a computer processing system for a shipment transaction involving a shipper and a carrier.

BACKGROUND OF THE INVENTION

Processing shipment transactions between a shipper and a carrier has been a manually intensive effort and has experienced little change. Generally, the shipment transaction process involves a goods transport path and a payment process path. The goods transport path typically starts when a carrier picks up the goods at the shipper's warehouse dock. The carrier receives a copy of a transaction document, sometimes referred to as a bill of lading (BOL), from the shipper. This type of transaction document includes information associated with the shipment transaction which is used by the shipper and carrier to track the shipment of goods. The carrier transports the goods to the receiver where the receiver signs a copy of the BOL to verify receipt of the goods. After the carrier has delivered the goods to the receiver, the carrier also submits the receiver's signed copy of the BOL to the carrier's headquarters.

The payment process path starts when the carrier picks up the goods from the shipper. The carrier sends a copy of the BOL to the carrier's headquarters for processing. The carrier headquarters rates the BOL. Rating involves determining the shipment cost which takes into the account various shipment parameters such as the size, weight, type of material, and destination of the shipment. The carrier creates an invoice, sets up an accounts receivable, and sends the invoice to the shipper's accounts payable department. The shipper, either internally or via a third party, audits the invoice to ensure the final cost is proper.

One of the more burdensome aspects of the traditional process involves reaching agreement as to the final cost. If there is a dispute as to final cost, the shipper and carrier begin a burdensome and sometimes lengthy negotiation process in an attempt to settle the dispute. If the dispute is resolved, the shipper sets up an accounts payable for the transaction. The shipper will then send payment to the carrier and clear the accounts payable. Traditionally, the process for paying the carrier and clearing the accounts payable involves several manually intensive steps. Upon receipt of payment, the carrier clears the accounts receivable. Traditionally, the process for clearing an accounts receivable includes the carrier manually inputting final payment information into the accounts receivable system.

The traditional approach can lead to many disadvantages for a transaction between one shipper and one carrier. Typically, however, there are multiple carriers and shippers involved in multiple transactions, which makes the situation more complex, and that much more slow and inefficient. The process is manually intensive in that it relies on the hard copy of the BOL for proof of delivery and payment, resulting in a series of repetitive and time consuming steps. Also, each BOL is often rated multiple times by multiple parties creating excessive redundancy.

Traditional shipment transaction systems are also highly susceptible to billing errors and fraud. For example, there is no connection between the delivery of goods and when the shipper is billed for delivery. This may result in double billing, no billing at all, or overbilling the shipper for freight delivery charges. Also, auditing error may occur which

results in incorrect billing or payment. In addition, the carrier waits a disproportionately long time for payment while the invoice is being audited and/or disputed. For example, traditionally, a delivery takes about five days whereas payment takes about thirty days. This unnecessary delay adversely affects the carrier's working capital resources.

Additional costs arise as a result of the existing inefficiencies. Many of the costs are individually small, but very large in the aggregate. For example, the carrier incurs administrative costs including: the cost to create and deliver the initial invoice, costs of resolving billing disputes, costs of providing a signed copy of the BOL to the shipper, and costs of posting accounts receivable. The shipper incurs similar administrative costs.

An additional disadvantage involves the inability to obtain immediate information regarding a shipment. Since the process is largely conducted manually, it is very difficult to track a shipment. To learn of the status of shipment or payment, there are various manual steps involved. For example, if the shipper wants to know if the carrier delivered the goods and if the payment has been made, the shipper must call the carrier and the appropriate financial institution.

There have been numerous attempts to improve the existing shipment and payment process. Some improvements have been made to each separate step of completing a shipment transaction, but the entire method remains relatively unchanged. For example, freight agents are used by shippers to schedule shipments and to process the invoice from the carrier. Also, third party service providers have taken over the role of managing the shipper's accounts payable department.

Another attempt to improve this burdensome transaction process involves the use of the Internet. Carriers have offered Internet access to their shipment information. Shippers access the carrier's Internet address and find out the immediate status of the shipment. A disadvantage of this system arises when, as in many applications, the shipper is using multiple carriers. In this typical situation, the shipper separately accesses the address of each carrier in order to find out the status of each shipment. This is unduly time consuming.

Another disadvantage of traditional systems is that the shipper's reference number and the carrier's reference number are not compatible. The carrier maintains the shipment data, so the shipper accesses the data using the carrier's reference number rather than the shipper's reference number. The shipper and carrier track each shipment using multiple reference numbers.

These various attempts to improve the overall process have fallen short of providing a convenient and cost effective system to process a shipment transaction.

SUMMARY OF THE INVENTION

According to one application, the present invention is directed to a shipment transaction system for processing transaction information related to goods shipped from a shipper by a carrier. The system comprises a means for accepting shipment information at the shipper's premises. The system provides a data processing means at the shipper's premises, responsive to the shipment information, arranged and configured to generate a set of transaction information. The transaction information includes information associated with the carrier and the time at which the shipment is initiated at the shipper's premises. The system uses a central processor arrangement, responsive to the

transaction information, and located remote from the shipper's premises, for processing selective information regarding the shipment. The system provides means for informing the central processor arrangement of delivery of goods by the carrier. The central processor arrangement, responsive to informing means, using the transaction information to audit the shipment transaction and payment thereof.

The above summary of the present invention is not intended to describe each illustrated embodiment, or every implementation, of the present invention. This is the purpose of the figures and of the detailed description that follows.

BRIEF DESCRIPTION OF THE DRAWINGS

Other aspects and advantages of the invention will become apparent upon reading the following detailed description and upon reference to the drawings in which:

FIG. 1 is a block diagram illustrating a specific embodiment which incorporates principles of the present invention.

FIG. 2 is a block diagram illustrating an example flowchart for programming the shipper processor **24** of FIG. 1 according to the present invention;

FIG. 2*a* is a block diagram illustrating an example flowchart for programming the BOL rating engine **30** of FIG. 1 according to the present invention;

FIG. 3 is a block diagram illustrating an example flowchart for programming the data processing device **34** of FIG. 1 according to the present invention;

FIG. 4 is a block diagram illustrating an example flowchart for programming the central processor **40** of FIG. 1 manipulating the transaction information according to the present invention;

FIG. 5 is a block diagram illustrating an example flowchart for programming the issuing processor **45** of FIG. 1 authorizing a transaction according to the present invention.

FIG. 6 is a block diagram illustrating an example flowchart for programming the VRU unit **48** according to the present invention.

FIG. 7 is a block diagram illustrating an example flowchart for programming the central processor **40** of FIG. 1 generating a deposit file according to the present invention.

FIG. 8 is a block diagram illustrating an example flowchart for programming the paying processor **54** of FIG. 1 according to the present invention.

FIG. 9 is a block diagram illustrating an example flowchart for programming the issuing processor **45** of FIG. 1 crediting a transaction according to the present invention.

While the invention is susceptible to various modifications and alternative forms, specific embodiments thereof have been shown by way of example in the drawings and will herein be described in detail. It should be understood, however, that it is not intended to limit the invention to the particular forms disclosed. On the contrary, the intention is to cover all modifications, equivalents, and alternatives falling within the spirit and scope of the invention as defined by the appended claims.

DETAILED DESCRIPTION OF THE DISCLOSED EMBODIMENTS

The present invention is generally applicable to a computer processing system for a shipment transaction involving a shipper and a carrier. The present invention has been found to be particularly advantageous for a system which efficiently automates the payment of a shipment transaction and efficiently provides access to shipment information.

The present invention is generally directed to a system which automates the shipment transaction process to thereby provide a convenient transaction protocol between the delivery, billing, and payment aspects of the transaction.

As shown in FIG. 1, a shipper processor **24** initiates the shipment transaction by acting in conjunction with a BOL rating engine **30** to generate a rated BOL. The shipper processor send the rated BOL to a data processing device **34** of a shipper access terminal **32**. The data processing device **34** generates transaction information and sends the transaction information to a central processor **40**. The central processor **40** identifies and centrally tracks the transaction information. A carrier processing device **46** receives proof of delivery information and sends this information to the central processor **40**. The central processor **40** processes and stores all pertinent shipment information in a data storage unit **42** and allows immediate access to this information by the shipper **20**, the carrier **22**, and other authorized users. This reduces the administrative costs of the shipper **20** and the carrier **22**. The central processor **40** interfaces with an improved payment system including an issuing institution **44** and a paying institution **52**. An issuing processor **45** of the issuing institution **44**, maintains a credit account for the shipper **20** and debits the shipper's account for the cost of the shipment. A paying processor **54** of the paying institution **52** tenders payment to the carrier **24**.

FIG. 2 is a block diagram illustrating an example flowchart for programming the shipper processor **24** of FIG. 1 according to the present invention. According to this example flowchart, the shipper processor **24** receives **200** an input of relevant purchase order information for storage and processing using an adequate input device **202**. Using a conventional desktop PC for example, a keyboard and mouse are adequate input devices. Using a more complex computer arrangement, a digital retrieving device, such as an information scanner, is used to offset some of the labor associated with this inputting effort.

The shipper processor **24** processes **204** the purchase order information including referencing inventory control and customer information systems to generate **206** shipment parameters. In a particular application, the shipment parameters include the identity of the carrier, identity of the receiver, the number of units, the weight of the shipment, the destination of the shipment, the date of shipment, and the estimated date of delivery. The shipper processor **24** is located at the shipper's premises so that the shipper processor **24** receives accurate information resulting in further reliability and efficiency of the system.

The shipper processor **24** electronically sends **208** the shipment parameters to the BOL rating engine **30**. The transmission is accomplished conventionally. The BOL rating engine **30** of the illustrated embodiment of FIG. 1, is designed to suit the needs of the particular shipper, the type of goods shipped, and to provide an interface to the shipper processor **24**. Conventionally, BOL rating engines, which are in use today, are implemented using a computer processing device such as a stand-alone personal computer, a personal computer connected to a network, or a conventional mainframe.

FIG. 2*a* is a block diagram illustrating an example flowchart for programming the BOL Rating Engine **30** of FIG. 1 according to the present invention. The BOL rating engine receives **216** the shipment parameters and processes **218** the shipment parameters. The BOL Rating Engine **30** generates **220** a rated BOL. The BOL rating engine **30** is programmed to an agreed upon rate structure by the shipper **20** and carrier

22. As a result, the BOL rating engine 30 produces consistently rated BOL's. This has the further advantage that the shipper 20 and the carrier 22 do not have to audit the engine often. Existing systems require frequent auditing of the results of the BOL rating engine. With no post audit adjustments, the payment to the carrier 22 is definite.

The BOL rating engine 30 sends 222 the rated BOL to the shipper processor 24. In a particular application, the BOL rating engine 30 is included in the shipper processor 24. The shipper processor 24 performs the rating function of the BOL rating engine 30 so that there is no need to send the shipment parameters to an external BOL rating engine. The shipment parameters are processed and a rated BOL is generated solely by the shipper processor 24.

Another advantage associated with the process in which a rated BOL is produced is that only one BOL rating engine 30 is needed for the entire shipment transaction system. This saves duplicate efforts by the carrier 22 and ensures exact payment. A significant benefit of this illustrated embodiment of FIG. 1 is that the cost depicted on the BOL is the final cost of shipment. Therefore, the shipper 20 and carrier 22 will immediately know the final cost of shipment before the goods are delivered. The BOL rating engine 30 removes ambiguity from the shipment transaction payment process which significantly offsets time consuming payment disputes.

The shipper processor 24 receives 212 the rated BOL and sends 214 the rated BOL to a shipper access terminal 32 located at the shipper's premises. In an alternative embodiment, the BOL rating engine 30 is located off the shipper's premises so that the shipper processor 24 can access the BOL rating engine 30 on an as-needed basis. One advantage is that one standardized BOL rating engine could be electronically linked to multiple shipper processors thereby reducing the cost to each individual shipper.

FIG. 3 is a block diagram illustrating an example flowchart for programming the data processing device 34 of FIG. 1 according to the present invention. The shipper access terminal 32 contains a data processing device 34 which receives 300 the rated BOL. The data processing device 34 validates 312 the rated BOL to ensure that the rated BOL contains data which is complete, error-free, and properly formatted. The data processing device 34 processes 312 the rated BOL and generates 316 a list of transaction information. The transaction information includes the information as seen in table 1 below. The columns in Table 1 represent the following: Data Element is the data that will reside in that particular element location, Length is the length of the data element; type is the type of data element which is either numeric or alphanumeric, and Description simply describes the function of the data element if necessary.

TABLE 1

	Transaction Information		
Data Element	Length	Type	DESCRIPTION
Shipper ID	10	N	Record ID
Dock ID	3	N	Record ID
Bill of Lading #	15	AN	Record ID
Ship Date	8	N	Record ID, reporting
SCAC	4	A	Standard Carrier Alpha Code, a national standardized carrier identification code.
Carrier Vendor Number	10	N	Alternate index, allows Shipper 20 to specify its vendor number for a given carrier 22

TABLE 1-continued

	Transaction Information		
Data Element	Length	Type	DESCRIPTION
Customer Number	10	N	Alternate index, allows shipper 20 to specify it's customer number for a given receiver
Customer PO #	15	AN	Alternate index, reporting
Shipper Order #	15	AN	Alternate index
Vendor Order Number	15	AN	Reporting, alternate locator, carrier 22 PO associated with shipment
Shipper Name	35	AN	
Shipper Contact Person	20	A	
Shipper Phone #	15	AN	
Origin Designator	10	AN	
City	20	AN	
State	2	A	
ZIP Code	9	N	
Division Code	2	AN	
Reference B/L # 1	15	AN	Consolidated Shipments
Reference B/L # 2	15	AN	Consolidated Shipments
Reference B/L # 3	15	AN	Consolidated Shipments
Bill of Lading Type	1	AN	Reporting
Shipment Mode	3	AN	Less than Truck Load(LTL), Truck Load (TL), Rail (RAI), AIR
Inbound, Outbound Flag	1	AN	
Prepaid, Collect Flag	1	AN	
COD Flag	1	N	
COD Amount	9.2	N	
Shipment Value	9.2	N	
Driver Name	20	AN	
Trailer/Car #	15	AN	
Trailer/CarSeal#	15	AN	
Import, Export Flag	1	AN	
# Stops	2	N	
Stop Off Charges	7.2	N	
Rated Freight Charges	9.2	N	
Cube Dimensions	5	N	
Shipment "as weight"	7.2	N	
Accessorial Charges	7.2	N	
Total Freight Chgs	9.2	N	
Destination Name	25	AN	
Destination City	20	AN	
Destination State	2	A	
Destination Zip Code	9	N	
Destination Area Code	3	N	
Destination Prefix	3	N	
Destination Phone	4	N	
Mileage	5	N	

The data processing device 34 sends the transaction information to a central processor 40. In one embodiment, the data processing device 34 is implemented using a conventional personal computer programmed to operate under the control of an operating system stored in the memory. These types of computer arrangements are not presently programmed to conventionally interface with a central processing center and a processing device located at a shipper's premises. One advantage of interfacing the central processor 40 with shipper access terminal 32 is that the shipper access terminal 32 can control the quantity, quality, and timing of information that is transmitted between the shipper processor 24 and the central processor 40. The access terminal 32 can also control the communication sessions between the shipper processor 24 and the

central processor **40**. The shipper access terminal **32** is designed so that the shipper **20** may directly access the transaction information. The shipper **20** will not be allowed to make changes to the transaction information, but is able to add additional information. This ensures the integrity of the transaction information. An additional advantage of the access terminal **32** is that the data processing device **34** can receive real-time information from the shipper processor **24** regarding the shipment transaction.

In an alternative embodiment, the shipper access terminal **32** is linked to a magnetic stripe card reader. The card reader accepts a card and transmits the data contained therein to the data processing device **34** of the shipper access terminal **32**. The magnetic stripe card reader accepts an identification card from a user of the system. The identification card contains relevant user information. In an alternative application, the access terminal **32** is linked to a bar code reader which is designed to receive information from a bar code and input the bar code information into the data processing device **34**. The bar code is printed on the BOL or on a carrier identification card.

The data processing device **34** sends **318** the transaction information to the central processor **40**. The design of the central processor **40** is dictated by the desired speed, the number of users, and the amount of data to be processed.

FIG. **4** is a block diagram illustrating an example flowchart for programming the central processor **40** of FIG. **1** to manipulate the transaction information according to the present invention. The central processor **40** receives **402** the transaction information and performs **404** an integrity check on the incoming information to ensure that the information is correctly formatted and contains no errors. If the integrity check is unsuccessful, the transaction information is stored in a suspense file in a data storage unit **42**. Once the error is corrected, the corrected transaction may be sent into the normal process flow. If the integrity check is successful, the central processor **40** retrieves **406** authorized user profile lists from the data storage unit **42**.

The data storage unit **42** is essentially a memory unit which stores information relevant to the shipping transaction. The design of the data storage unit **42** is dictated by the amount of data needed to be stored.

The authorized user profile lists represent the users and combination of users that are authorized to use the system. Authorized user profile lists include a shipper profile list, a carrier profile list, a carrier/shipper profile list, and a shipper access terminal profile list. The profile lists provide the cross reference between the payment ID (assigned by central processor **40**), an account ID (assigned by an issuing processor **45**), and a merchant number (assigned by a paying processor **54**).

An authorized shipper profile list identifies information regarding the shipper and the shipment as can be seen below in Table 2.

TABLE 2

Shipper Profile

DATA ELEMENT	WIDTH	TYPE	DESCRIPTION
Shipper ID	10	N	Uniquely identifies a legal entity using a single BOL system, assigned by the CP 40.
Account ID	16	N	Account # assigned to shipper 20 by issuing processor 54.
Shipper Name	32	A/N	
Shipper Address 1	32	A/N	Headquarters Address
Shipper Address 2	32	A/N	
Shipper City	28	A/N	
Shipper State/Province	3	A/N	
Shipper Country	3	A/N	
Shipper Contact	32	A/N	
Shipper Phone	10	N	
Open Date	8	N	Supplied by CP 40 when record is built. YYYYMMDD format
Date of First Activity	8	N	Automatically supplied by CP 40 when first BOL record is received by CP 40 -YYYYMMDD format
Date of Last Activity	8	N	Automatically updated by CP 40 every time a BOL record is processed
Current Status	4	A	Valid values are OPEN, CLSD, HOLD. Automatically updated on effective date if effective date was pre-entered or as part of on-line transaction when effective date is set to today.
Current Status Date	8	N	Automatically updated by system when current status field is updated, YYYYMMDD format
Pending Status	4	A	User will key status, valid values are OPEN, CLSD, HOLD
Effective Date	8	N	Default to today's date with user ability to override to a future date. YYYYMMDD format
Last update date	8	N	Automatically stamped by CP 40
Last update time	4	N	Automatically stamped by CP 40. HHMM format
Last Update User	8	A/N	Automatically pulled from user profile by CP 40.

An authorized carrier profile list identifies information regarding the carrier **22** and the shipment transaction as can be seen below in table 3. Included in the carrier profile is a merchant number which a paying processor **54** assigns to the carrier **22**. Each carrier **22** can have multiple merchant numbers if desired. This allows carrier flexibility to assign different merchant numbers for different regions or different shippers. This flexibility facilitates the carrier's business management process. It is not known of existing systems which provide such flexibility.

TABLE 3

Carrier Profile

COLUMN NAME	DATA WIDTH	DATA TYPE	DESCRIPTION
SCAC	4	A/N	4 character code that uniquely identifies a Carrier 22.
Merchant Number	10	N	Paying processor 54 assigns to each carrier.
Carrier 22 Name	32	A/N	DBA name of Carrier HQ
Carrier Address 1	32	A/N	
Carrier Address 2	32	A/N	
Carrier City	28	A/N	
Carrier State/Province	3	A/N	
Carrier Country	3	A/N	
Carrier Contact	32	A/N	Name of primary contact at Carrier HQ
Carrier Phone	10	N	Phone number of primary contact at Carrier HQ

TABLE 3-continued

Carrier Profile

COLUMN NAME	DATA WIDTH	DATA TYPE	DESCRIPTION
Open Date	8	N	Automatically supplied by CP 40 when record is built. YYYYMMDD format
Date of First Activity	8	N	Automatically supplied by CP 40 when first BOL record is received by system on this Carrier 22-YYYYMMDD format
Date of Last Activity	8	N	Automatically updated by system every time a BOL record is processed for this Carrier 22
Current Status	4	A	Valid values are OPEN, CLSD, HOLD. Automatically updated on effective date if effective date was pre-entered or as part of on-line transaction when effective date is set to today.
Current Status Date	8	N	Automatically updated by CP 40 when current status field is updated, YYYYMMDD format
Pending Status	4	A	User will key status
Effective Date	8	N	Default to today's date with user ability to override to a future date. YYYYMMDD format
Last update date	8	N	Automatically stamped by CP 40
Last update time	4	N	Automatically stamped by CP 40 HHMM format
Last Update User	8	A/N	Automatically pulled from user profile lists by CP 40

An authorized shipper/carrier profile list identifies information regarding valid shipper carrier combinations as can be seen below in table 4

TABLE 4

Shipper/Carrier Profile

COLUMN NAME	DATA WIDTH	DATA TYPE	DESCRIPTION
Shipper ID	10	N	
Carrier SCAC	4	A/N	
Merchant Number	10	N	Assigned by Paying processor 54. If blank, use default value from carrier profile.
Proof of Delivery (POD)	1	A	"Y" for POD to be required, "N" for POD not required
Type of POD	4	A	Identifies in what manner the POD is to be received.
Auto close days	2	N	Number of days after which the transaction will close and be paid to the Carrier 22 regardless of whether or not POD has been posted.
Open Date	8	N	Automatically supplied by CP 40 when record is built. YYYYMMDD format
Date of First Activity	8	N	Automatically supplied by CP 40 when first BOL record is received by system-YYYYMMDD format
Date of Last Activity	8	N	Automatically updated by CP 40 every time a BOL record is processed
Current Status	4	A	Valid values are OPEN, CLSD, HOLD. Automatically updated on effective date if effective date

TABLE 4-continued

Shipper/Carrier Profile

COLUMN NAME	DATA WIDTH	DATA TYPE	DESCRIPTION
			was pre-entered or as part of on-line transaction when effective date is set to today.
Current Status Date	8	N	Automatically updated by CP 40 when current status field is updated, YYYYMMDD format
Pending Status	4	A	User will key status
Effective Date	8	N	Default to today's date with user ability to override to a future date. YYYYMMDD format
Last update date	8	N	Automatically stamped by CP 40
Last update time	4	N	Automatically stamped by CP 40 HHMM format
Last Update User	8	A/N	Automatically pulled from user profile lists

An authorized shipper access terminal profile identifies the shipper **20** as well as the shipping dock. A shipper has a separate shipper access terminal profile for each dock. The central processor **40** assigns a different dock ID for each dock. The information included in the access point profile is listed below in table 5

TABLE 5

Access Terminal Profile

COLUMN NAME	WIDTH	TYPE	DESCRIPTION
Shipper ID	10	N	Uniquely identifies a legal entity using a single BOL system
Dock ID	3	N	Uniquely identifies a particular physical dock location with a shipper ID.
Account ID	16	N	Issuing Processor 54 assigns. Defaults from shipper profile, can be overridden by shipper.
Dock Name	32	A/N	DBA name of dock originating BOL
Dock Address 1	32	A/N	Street address of dock originating BOL
Dock Address 2	32	A/N	
Dock City	28	A/N	
Dock State/Province	3	A/N	
Dock Country	3	A/N	
Dock Contact	32	A/N	
Dock Phone	10	N	To be used for reporting against completion transaction
Open Date	8	N	Automatically supplied by CP 40 when record is built. YYYYMMDD format
Date of First Activity	8	N	Automatically supplied by CP 40 when first BOL record is received by system-YYYYMMDD format
Date of Last Activity	8	N	Automatically updated by CP 40 every time a BOL record is processed
Current Status	4	A	Automatically updated by CP 40 on the effective date if effective date was pre-entered or as part of the on-line transaction if the effective date is changed to today. Valid values are OPEN, CLSD, HOLD
Current Status Date	8	N	Automatically updated by CP 40 when current status field is updated, YYYYMMDD format
Pending Status	4	A	User will key status

TABLE 5-continued

Access Terminal Profile

COLUMN NAME	WIDTH	TYPE	DESCRIPTION
Effective Date	8	N	Default to today's date with user ability to override to a future date. YYYYMMDD format
Last update date	8	N	Automatically stamped by CP 40
Last update time	4	N	Automatically stamped by CP 40 HHMM format
Last Update User	8	A/N	Automatically pulled from user profile lists

The central processor **40** authenticates **408** the transaction information by comparing elements of transaction information with the authorized user profile lists. The elements of the transaction information used for authentication include; the identity of the shipper, the identity of the shipper's dock, and the identity of the carrier. If the authentication is successful, the central processor **40** assigns **410** a payment identification number (payment ID) to the transaction information and stores **412** the transaction information in the data storage unit **42**. The payment ID is a unique key for the transaction record which the central processor **40** uses to centrally track the transaction. The payment ID includes specific information regarding the shipment transaction including; the shipper identification number, the BOL number, and the shipping date. The advantage of the payment ID is that it allows the central processor **40** to more efficiently and accurately track the different actions occurring within the system. The payment ID can be referenced to the specific identification numbers which any of the users may assign. The payment ID is now considered "open". Open is a term used to signify that the shipper **20** has transferred the goods to the carrier **22**, and the carrier **22** has not yet completed the shipment.

If the authentication is unsuccessful, the central processor **40** stores **414** the invalid transaction in a suspense file in the data storage unit **42**. When an invalid transaction is stored, a notification is sent which indicates that an error has occurred and is in need of further review and correction. Once the error is corrected, the corrected transaction may be sent into the normal process path.

The central processor **40** sends the authenticated transaction information, including the shipper identity and the cost of the shipment, to an issuing institution **44** for authorization. FIG. **5** is a block diagram illustrating an example flowchart for programming the issuing processor **45** of FIG. **1** to perform an authorization check according to the present invention. The issuing institution **44** contains an issuing processor **45**. The issuing processor **45** maintains accounts for one or more shippers. Each account includes information regarding credit limits, open authorizations, unpaid balances, and the resulting open-to-buy. Open-to-buy measures the unused credit limit.

The issuing processor **45** receives **502** the authorization request from the central processor **40**. The issuing processor **45** compares **504** the authorization request to the open-to-buy of the shipper and attempts to approve **506** the request. If the shipper **20** has enough open-to-buy, the issuing processor **45** approves the authorization request. The issuing processor **45** stores **507** the approved authorization request and decreases **508** the open-to-buy. The issuing processor **45** sends **510** the authorization approval to the central processor **40** and the central processor **40** updates the records in the data storage unit **42**. If the authorization is successful, the payment ID is considered "authorized". If the authorization is unsuccessful, the issuing processor **45** sends **512** an authorization decline to the central processor **40**.

After the goods are delivered to a receiver, the payment ID must be "closed". Closed refers to providing proof of delivery (POD) of the shipment in order to complete the shipment transaction. POD includes the identity of the shipper, the BOL number, the carrier invoice number, the delivery date and time, the person acknowledging receipt, and the condition of the shipment. A carrier processor **46** receives the POD and sends the information to the central processor **40**.

In one embodiment, the carrier processor **46** is a conventional bar code reader. The bar code reader is used by the carrier **22** to read a bar code on the shipment. The bar code reader sends the POD information to the central processor **40**.

In an alternative embodiment, the carrier processor **46** is a voice response unit **48** (VRU). FIG. **6** is a block diagram illustrating an example flowchart for programming the VRU **48** according one embodiment of the present invention. In this embodiment, the central processor **40** extracts an open payment ID from the data storage unit **42**. The central processor **40** sends information relating to the open payment ID, including the BOL number and the shipper ID, to the VRU **48**. The VRU **48** receives **602** the open BOL number.

A standard touch-tone telephone is used to access the VRU **48**. While the location of the telephone is not critical, locating it at the receiver's premises promotes efficiency, convenience, and accuracy. It is convenient and efficient because the carrier **22** can call the VRU **48** at the exact time the shipment is delivered. It is accurate in that the phone number of the receiver, automatically captured by the VRU **48**, will identify where and when the call was made.

The VRU **48** prompts **604** the carrier **22** for the shipper ID. The VRU **48** receives **606** the shipper ID and attempts to match **608** the entered shipper ID with a open shipper ID. If the shipper ID is matched, the VRU **48** prompts **610** the carrier **22** for the BOL number. The VRU **48** receives **612** the entered BOL number and attempts to match **614** the combination of the entered BOL number and shipper ID with an open BOL number and Shipper ID. If the BOL number and shipper ID combination is matched, the VRU **48** prompts **616** the carrier **22** for condition of shipment. The VRU **48** receives **618** the condition of shipment and sends **620** the POD information which includes BOL number, the shipper ID, and the condition of the shipment to the central processor **40**.

If the VRU **48** cannot match either the shipper ID and the BOL number, the VRU **48** prompts **622** the carrier **22** to either try again or routes **624** the carrier **22** to customer service where the problem can be resolved.

FIG. **7** is a block diagram illustrating an example flowchart for programming the central processor **40** of FIG. **1** generating a deposit file according to the present invention. The central processor **40** receives **702** the matched BOL number, the shipper ID, and the condition of the shipment from the carrier processor **46**. The central processor **40** validates **704** the incoming data to ensure that it is error free and properly formatted. The central processor **40** extracts **706** the open payment ID from the data storage unit **42**. The central processor **40** authenticates **708** the matched BOL number with an open payment ID. If the BOL number and payment ID are authenticated, the payment ID is considered

complete. The central processor stores **710** the completed transaction and corresponding payment ID in the data storage unit **42**. If authentication is unsuccessful, the central processor **40** stores **712** the information in a suspense file where the problem can be manually resolved as discussed above.

A payment ID can be completed by the above manner, or a payment ID can expire. A payment ID expires when a preprogrammed number of days has elapsed since the shipping date. This preprogrammed number of days is defined as auto close days in the data storage unit **42**. A particular transaction is identified by the shipper and carrier to expire on a specific date, the effective date, whether or not the proof of delivery is received. On the effective date, the payment process begins. This has the advantage that the carrier **22** will be paid for every shipment carried. Payment to the carrier **22** is expedited if proof of delivery is received.

Proof of Delivery

The central processor **40** periodically extracts **714** from the data storage unit **42** the transactions that are listed as "completed and authorized" or "expired and authorized." The central processor **40** sorts and batches **716** the transactions by the merchant number. The central processor **40** generates **718** a deposit file **50** for those authorized transactions which are completed or expired and which have not been previously extracted. In a particular application, one deposit file **50** is created for all transactions completed by each carrier. The deposit file **50** is formatted so that it is compatible with the paying processor's **54** format. The deposit file **50** includes the payment ID, the account ID, the carrier identity, the BOL number, the destination city, the destination state, the destination zip code, and the cost of shipment. The cost of the shipment represents the amount that is owed by the shipper **20** and payable to the carrier **22**.

The central processor **40** performs **720** a general integrity check on the deposit file **50**. The integrity check includes: ensuring that the payment ID has been authorized, ensuring that the BOL is completed or expired, and ensuring that payment has not yet occurred for the particular payment ID.

If the central processor **40** validates the deposit file **50**, the processor **40** sends **722** the deposit file **50** to a paying processor **54** of a a paying institution **52**. In a particular application, the deposit file **50** is conventionally sent via a telephone transmission. The paying institution has a paying processor **54** which processes financial information and maintains financial accounts for the carrier **22**. The paying processor **54** is generally designed to process financial information. The paying institution **52** maintains one or more accounts for each carrier **22**.

FIG. **8** is a block diagram illustrating an example flowchart for programming the paying processor **54** of FIG. **1** according to the present invention. The paying processor **54** receives **802** the deposit file **50** and sends **804** a confirmation message to the central processor **40** that the deposit file **50** was received.

The paying processor **54** validates **806** the incoming deposit file and generates **808** payment to the carrier **22**. The paying processor **54** tenders **810** payment to the carrier **24** and sends **812** this information to the central processor **40** so that the central processor **40** can update the data storage unit **42**. In a particular application, the paying processor **54** tenders payment by directly paying the carrier **22**. In an alternative embodiment, the paying processor **54** sends the payment to the carrier's bank conventionally through the Federal Reserve's Automated Clearing House.

One advantage associated with the generation of payments to the carrier **22** is that the carrier **22** is paid relatively soon after the carrier **22** has completed the shipment. This provides the carrier **22** with improved cash flow and reduces the carrier's working capital requirements. Another advantage is that the carrier **22** does not have to audit or rate the payment which saves time and money. This streamlined approach reduces the carrier's administrative costs associated with processing a payment.

The paying processor **54** generates **814** a systems bill for the carrier **22**. This systems bill represents the amount the carrier **22** owes for the service provided by the system of the present invention. The paying processor **54** sends **816** the systems bill to the carrier **22**. The paying processor **54** sends **818** the systems bill information to the central processor **40** where the information is stored in the data storage unit **42**. The paying processor **54** delivers **820** the paid shipment transactions to the issuing processor **45** of the issuing institution **44**.

The issuing institution **44** maintains one or more accounts for the shipper **20** and extends and manages credit to the shipper **20**. The issuing processor **45** maintains the amount paid to each carrier **22** on behalf of each shipper **20**. FIG. **9** is a block diagram illustrating an example **20** flowchart for programming the issuing processor **45** of FIG. **1** to credit a transaction according to the present invention. The issuing processor **45** receives **902** the paid transactions from the paying processor **54**. The issuing processor **45** retrieves **904** the approved authorization list and compares **906** the authorization list with the paid transactions. The issuing processor **45** attempts to match **908** the paid transactions with an authorized transaction. If a match is made, no change is made to the open to buy. If a match is not made, the issuing processor **45** decreases **910** the open to buy.

The issuing processor **45** posts **912** the cost of shipment for all paid transactions to the shipper's account thereby increasing the balance due from the shipper **20**. The issuing processor **45** periodically bills **914** the shipper **20** for the posted financial transactions paid on behalf of the shipper **20** and periodically receives **916** payment from the shipper **20**. When the issuing processor **45** receives payment, the processor **45** posts payment to the shipper's account and increases **918** the open-to-buy.

The issuing processor **45** communicates with the central processor **40** and sends information regarding shipper **20** payment and billing. The central processor **40** updates the data storage unit **42** with this information.

In an alternative embodiment, the paying institution **52** is incorporated into the issuing institution **44**. This results in one processor performing the functions of the issuing processor **45** and the paying processor **54**.

A further advantage of the computer processing system for a shipment transaction involving a shipper and a carrier is that the data storage unit **42** and central processor **40** interface to store and provide value-laden information to the users of the system. The central processor **40** provides a security check for all information entering and leaving the data storage unit **42**. The central processor edits incoming files and provides on-line alarms for duplicate files, stale dated files, out of balance files, and files with corrupt data. The central processor **40** maintains a suspense file in the data storage unit **42** where incoming invalid transaction information and unmatched proof of delivery information are stored. With a centrally located suspense file, the problem resolution process is more efficient.

The central processor **40** maintains data views and tables and stores this information in the data storage unit **42**. The central processor **40** maintains a BOL Header Table for each

BOL number which generally includes a summary of all information relating to that shipment transaction. This information is shown in the table 6 below. The source of the particular data element is indicated in column four of table 6.

TABLE 6

BOL Header Data Elements

Data Element	Length	Type	Source	Purpose
Shipper ID	10	N	CP 40	Record ID
Dock ID	3	N	CP 40	Record ID
Account ID	16	N	CP 40	Record ID; reporting
Bill of Lading #	15	AN	Shipper	Record ID
Ship Date	8	N	Shipper	Record ID, reporting
SCAC	4	A	Shipper	Alternate index, identifies Carrier
Merchant #	10	N	CP 40	Alternate index, for CP 40 usage
Vendor #	10	N	Shipper	Alternate index, allows Shipper to specify it's vendor number for a given carrier
Customer Number	10	N	Shipper	Alternate index, allows Shipper to specify it's customer number for a given receiver
Customer PO #	15	AN	Shipper	Alternate index, reporting
Shipper Order #	15	AN	Shipper	Alternative Index
Vendor Order Number	15	AN	Shipper	Reporting, alternate locator
Shipper Name	35	AN	Shipper	Reporting
Shipper Contact Person	20	A	Shipper	Claims
Shipper Phone #	15	AN	Shipper	Claims
Origin Designator	10	AN	Shipper	Reporting
City	20	AN	Shipper	reporting
State	2	A	Shipper	reporting
ZIP Code	9	N	Shipper	reporting
Division Code	2	AN	Shipper	reporting
Reference B/L #1	15	AN	Shipper	Consolidated Shipments
Reference B/L #2	15	AN	Shipper	Consolidated Shipments
Reference B/L #3	15	AN	Shipper	Consolidated Shipments
Bill of Lading Type	1	AN	Shipper	Reporting
Shipment Mode	3	AN	Shipper	LTL, TL, RAI, AIR.
Inbound, Outbound Flag	1	AN	Shipper	reporting
Prepaid, Collect Flag	1	AN	Shipper	reporting
COD Flag	1	AN	Shipper	reporting
COD Amount	9.2	AN	Shipper	reporting
Shipment Value	9.2	AN	Shipper	reporting; claims
Driver Name	20	AN	Shipper	Reporting; Claims
Trailer/Car #	15	AN	Shipper	reporting; claims
Trailer/Car Seal #	15	AN	Shipper	reporting; claims
Import, Export Flag	1	AN	Shipper	reporting
# Stops	2	N	Shipper	reporting
Stop Off Charges	7.2	AN	Shipper	reporting
Rated Freight Charges	9.2	AN	Shipper	payment, reporting
Cube Dimensions	5	N	Shipper	reporting
Shipment "as weight"	7.2	N	Shipper	reporting; claims
Accessorial Charges	7.2	AN	Shipper	payment, reporting
Total Freight Chgs	9.2	AN	Shipper	payment, reporting
Destination Name	25	AN	Shipper	reporting
Destination City	20	AN	Shipper	reporting
Destination State	2	A	Shipper	reporting
Destination Zip Code	9	N	Shipper	reporting

TABLE 6-continued

BOL Header Data Elements

Data Element	Length	Type	Source	Purpose
Destination Area Code	3	N	Shipper	reporting, verification
Destination Prefix	3	N	Shipper	reporting, verification
Destination Phone	4	N	Shipper	reporting, verification
Mileage	5	N	Shipper	reporting
Voucher/Check #	12	AN	CP 40	inquiry
Ship Date	8	N	Shipper	Life cycle tracking
CP 40 Receipt Date	8	N	CP 40	Life cycle tracking
Storage Insert Date	8	N	CP 40	Life cycle tracking
VRU Extract Date	8	N	CP 40	Life cycle tracking
Authorization Date	8	N	CP 40	Life cycle tracking
Authorization #	6	AN	Issuing Proc.45	From authorization response feed
Auth Response Code	2	AN	Issuing Proc.45	From authorization response feed
Delivery Date	8	N	CP 40	Life cycle tracking
Completion Date	8	N	CP 40	Life cycle tracking
Deposit Extract Date	8	N	CP 40	Life cycle tracking
Settlement Date	8	N	Paying Proc.54	From Settlement record
Settlement DDA #	12	AN	Paying Proc.54	From Settlement record
Shipper Billing Date	8	N	Issuing Proc.45	From statement billing file feed for life cycle tracking
Delivery Area Code	3	N	Carrier Proc	POD tracking, claims
Delivery Prefix	3	N	Carrier Proc.46	POD tracking, ciaims
Delivery Phone	4	N	Carrier Proc.46	POD tracking, claims
Receiver Name	20	A	Carrier	POD tracking, claims
Receipt Condition	1	A	Carrier Proc.46	Quality of service tracking, claims
POD ID	15	AN	Carrier Proc.46	Provided by carrier 22(such as FedEx, UPS) who has accepted POD system

In addition, the central processor **40** maintains BOL line item details from the transaction information. The BOL line item details generally consist of information relating to the goods of the shipment as can be seen below in table 7.

TABLE 7

BOL Line Item Detail Data Elements

Data Element	Length	Type	Source	Purpose
Shipper ID	16	N	CP 40	Record ID
Bill of Lading #	15	AN	Shipper	Record ID
Ship Date	8	N	Shipper	Record ID
Product Description	28	AN	Shipper	reporting, claims
Product ID	8	AN	Shipper	reporting, claims
Product Value	7.2	$N	Shipper	claims
Haz Mat Flag	1	AN	Shipper	reporting, claims
Item Weight	7.2	N	Shipper	reporting, claims
Total Pcs	5	N	Shipper	reporting, claims
Item "as weight"	7.2	N	Shipper	reporting
Unit of Measure	4	AN	Shipper	reporting, claims
Accounting Code	25	AN	Shipper	reporting
Item Freight Charges	7.2	N	Shipper	reporting, claims

In the example system application of FIG. 1, the carrier 22 will not have access to the BOL line item product value, but will be able to see the line item freight charges.

A further advantage of the shipment transaction system of FIG. 1 is that the system allows multiple users to obtain information about the same shipment from the same source. Since the system supplies information from the same source, all users will obtain the same information at the same time. This advantage of timeliness does not exist in current systems. Existing systems are not known to provide a single source of up-to-date information regarding multiple shipment transactions.

In an alternative embodiment, multiple users access the shipment information via the central processor 40. The shipment information is stored in the data storage unit 42. The central processor 40 is electronically linked to a multitude of user stations. The link between the central processor 40 and a user station allows for conventional two-way communication. The user station is a standard personal computer comprising of a video display, a keyboard, a central processor, and a modem link. A user initiates a request for information by accessing the central processor 40 using the personal computer. When the user is logged into the central processor 40, the central processor 40 prompts the user to enter a password.

The central processor 40 provides a security check on all information requests. The security check is programmed such that the shipper 20 and carrier 22 are restricted to accessing only their own data. In addition, the processor 40 is programmed such that unauthorized parties are denied access.

The central processor 40 receives informational requests from the user. The central processor 40 accesses the data storage unit 42 and extracts the requested information and transmits the information to the user's station. The advantage of such an information service is clear. Users will be able to obtain current information regarding a shipment transaction.

In a particular application, once a user has access to the system, the central processor 40 will prompt the user for a range of dates of interest including the current day, the previous day, monthly total, yearly total, or a specified date range. The central processor 40 displays the transaction information, freight amounts, shipment costs, total weight, and cost per pound for various types of transactions including: transactions added to the data storage unit, transactions with proof of delivery, transactions that have expired, transactions in the suspense file, transactions paid to carrier, transactions in transit, transactions declined, and transactions approved.

The central processor 40 allows user's to request a particular transaction by entering any one of a multitude of transaction elements. The central processor 40 identifies a particular transaction with reference to the BOL number, the shipper's customer number for the receiver 22, the payment ID, the carrier's customer number for the shipper 20, the merchant number, the account ID, the receiver's order number for the shipper 20, the shipper's order number for the BOL number, or the shipping date. This ensures compatibility between the user reference numbers such that the user can access information using their unique reference number assigned to the transaction.

The example application has additional advantages. The central processor 40 provides to all authorized users the ability to generate custom analysis of their own data. This has the advantage of giving the carrier 22 the ability to extract payment data needed to automatically post his accounts receivable system. This is an advantage over existing systems which rely on manual distribution of payment against the account receivable system. Similarly, the shipper can extract payment data and automatically post his accounts payable which closes out the individual accounts payable due to each carrier. An advantage stemming from this automated system is that the shipper 20 does not need a paper invoice in order to have proof of delivery. The shipper 20 accesses the central processor 40 and verify which shipments have been delivered by a particular carrier 22. Similarly, the carrier 22 accesses the central processor 40 to find out which transactions have been paid out by the shipper 20. This informational system removes much uncertainty from the shipment process which promotes more efficient use of available resources such as working capital, transportation, and personnel.

In a particular application, the central processor 40 generates standard shipment transaction summary reports and provides appropriate access to the reports by various users. These reports include a transaction inventory control report, an open aging summary report, a suspense inventory control by source report, and a suspense inventory aging summary report. The central processor 40 uses the security profiles to determine which subset of transaction records will be summarized for each user. For example, the shipper 20 has access only to that shipper's reports.

The inventory control report provides control totals of BOL numbers, merchandise value, and freight value. There are key control points including: starting inventory position, new BOL's from shippers, BOL's closed since the last report by the different methods discussed for closing BOL numbers, BOL's re-opened since the last report by manual proof of delivery override via customer service, BOL's canceled since the last report, and the ending inventory position.

The open aging summary report contains those BOL numbers that have not been delivered. In addition, the freight value and merchandise value for each shipper ID and Dock ID are supplied for distinct age groups. The age groups include groupings by consecutive days since the shipping date and one group for 10 days past the shipping date. The suspense inventory control by source report includes merchandise and freight value amounts of transactions in the suspense file. Several control points for the suspense inventory control include: starting inventory position, new inventory added since last report, inventory cleared since last report, inventory deleted since last report, inventory undeleted since last report, and ending inventory position. The suspense inventory aging summary report provides an aged summary of suspense files including the merchandise and freight value of items that are in the suspense file by original receipt date.

The central processor 40 generates detailed reports including: the inventory aging detail report, the suspense inventory aging detail report, and the declined item aging detail report. The detail reports are viewed by either the shipper ID/Dock ID/account ID combination or by the carrier ID/merchant number combination. The inventory aging detail report lists the open BOL numbers sorted by the days in inventory, the shipper ID combination, and the BOL number. The inventory detail report lists the merchandise and freight value associated with each open BOL number. The suspense inventory aging detail report lists open BOL numbers by source and receipt date. Several fields are displayed including: shipper ID, dock ID, account ID, BOL number, carrier ID, freight value, and the merchandise value.

The declined item aging detail report allows users to research the cause of exception items and lists the shipper ID combination, ship date, authorization time, BOL number, shipper invoice number, merchant number, and freight value. The declined item aging detail report is viewed by either shipper ID/dock ID/account ID combination, or by carrier ID/merchant number combination.

The central processor **40** generates two reports that reference declined authorizations. These reports include the declined item summary report and the declined item aging report. The declined item summary report summarizes information regarding the declined authorization. The declined item aging report summarizes the information regarding the declined authorization by the shipping date.

Accordingly, the present invention provides, among other aspects, a computer processing system for a shipment transaction involving a shipper and a carrier. Other aspects and embodiments of the present invention will be apparent to those skilled in the art from consideration of the specification and practice of the invention disclosed herein. It is intended that the specification and illustrated embodiments be considered as exemplary only, with a true scope and spirit of the invention being indicated by the following claims.

What is claimed is:

1. In an environment of multiple shippers and carriers, a shipment transaction system for processing transaction information related to goods shipped from one of the shippers by one of the carriers, the shipment transaction system comprising:

means for accepting shipment information at the shipper's premises;

means for generating a set of transaction information in response to the shipment information, said transaction information including a code to identify the carrier, a code to identify the shipper, information associated with the goods to be shipped, and the time at which the shipment is initiated at the shipper's premises;

a central processor arrangement, located remote from the shipper's premises, responsive to the transaction information, storing an authorized profile list criterion, and determining whether the transaction information satisfies the authorized profile list criterion, wherein the authorized profile list criterion includes information about authorized users; and

means for informing the central processor arrangement of delivery of the goods by the carrier, the central processor arrangement being responsive to the informing means and using the transaction information and the authorized profile list criterion to audit the shipment transaction and payment thereof.

2. The system of claim **1** wherein the generating means comprises a first data processor at shipper's premises.

3. The system of claim **1** wherein the central processor arrangement verifies that the shipment transaction is completed or expired as part of the audit.

4. The system of claim **3** further comprising means for generating a deposit files, wherein the deposit file represents a previously determined cost of the shipment, and further comprising means for sending the deposit file to a financial institution.

5. The system as described in claim **4** wherein said means for generating a deposit file further comprises means for extracting a list of authorized and completed transactions from a data storage unit and sorting the transaction.

6. The system as described in claim **5** further comprising means for extracting a list of authorized transactions from a data storage unit and sorting the transaction by the carrier wherein the expired transaction represent those transactions that have passed a predetermined date.

7. The system of claim **1** wherein the set of transaction information is derived from a pre-approved rating system.

8. The system of claim **1** further comprising a plurality of data processing devices located at the premises of a corresponding plurality of users wherein the central processor extracts relevant shipment data from a data storage unit and sends said relevant shipment data to said plurality of data processing devices.

9. The system as described in claim **1** further comprising means for accepting an identification card wherein identification card contains shipment information.

10. A system for billing a shipper and paying a carrier for a completed shipment transaction, comprising:

means for receiving a set of transaction information including the cost of shipment from a central processor arrangement;

means for maintaining a credit account for the shipper;

means for verifying that the shipper has sufficient credit to fund the cost of shipment;

means for debiting the account for the shipper; and

means for tendering payment to the carrier, wherein the cost of shipment is transmitted to a financial institution and the financial institution effects payment to the carrier.

11. The system of claim **10** further comprising means for determining costs of using the system and billing the shipper and the carrier for the costs of using the system.

12. For use in a shipment transaction system involving multiple shippers and carriers, a shipment transaction method for processing transaction information related to goods shipped from one of the shippers by one of the carriers, the method comprising the steps of:

accepting shipment information at the shipper's premises;

generating a set of transaction information in response to the shipment information, said transaction information including a code to identify the carrier, a code to identify the shipper, information associated with the goods to be shipped, and the time at which the shipment is initiated at the shipper's premises;

providing a central processor arrangement, located remote from the shipper's premises, arranged to respond to the transaction information by storing an authorized profile list criterion and determining whether the transaction information satisfies the authorized profile list criterion, wherein the authorized profile list criterion includes information about authorized users;

informing the central processor arrangement of delivery of the goods by the carrier; and

using the central processor arrangement to respond to the informing means by using the transaction information and the authorized profile list criterion to audit the shipment transaction and payment thereof.

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UNITED STATES PATENT AND TRADEMARK OFFICE
CERTIFICATE OF CORRECTION

PATENT NO. : 5,910,896

DATED : June 8, 1999

INVENTOR(S) : Hahn-Carlson, D.

It is certified that error appears in the above-identified patent and that said Letters Patent is hereby corrected as shown below:

Column 3, line 9: delete ", or every".

Column 3, line 10: delete "implementation,".

Column 13, line 41: please delete the second occurrence of the word "a".

Column 19, line 58: "files" should read --file--.

Signed and Sealed this

Fourteenth Day of November, 2000

Attest:

Q. TODD DICKINSON

Attesting Officer

Director of Patents and Trademarks